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Throughout history, human beings have always tried to make new products such as fire, tools, and electronic products. Nowadays, people, especially scientists, have evolved new food by using genetic engineering technology. In general, scientists change the genes in a wide range of foods; hence, new food is produced. This food is called Genetically Modified Organisms (GMO) or Genetically Engineered Organisms (GEO). Due to the emergence of this kind of food, there is a controversial argument about whether or not GM food is harmful to the environment. Some research claims this food deteriorates nature but others are that this food will positively affect on the environment. Although some effects of GM food are negative, GM food mostly has positive influences on our environment.

Some scientists argue that GM food has negative impacts on the environment. First of all, GM foods spread virus throughout the environment. In the article “Environmental Effects of Genetically Modified Food Crops: Recent Experiences” Margaret Mellon and Jane Rissler say that GM crops which has viruses, have a possibility to spread more viruses (par. 14). This is because GM foods which changed genes cause the environment to mutate. In the end, this can generate new viruses which are now studying. Moreover, GM foods can cause people and animals to be harmful. When people eat the fruits of GM crops which included the viruses, this will be very dangerous. Also, GM crops have the possibility of becoming, weeds which have negative effects on the environment. Mellon and Rissler say, “First, the engineered crops themselves could become weeds, a broad term that covers plants with undesirable effects” (par 14). One of negative effects of weeds is that this weeds damage to other plants. In other words, by absorbing other plants’ nutrients, weeds can survive. In order to remove the weeds, the farmers use a lot of amounts of pesticide. Accordingly, not only did this pesticide for weeds kill other plants, but this contaminated soil and water by pesticide.

In addition to spread new viruses and to become weeds, GM foods change the diversity of regular foods. A study by Kakoli Ghosh and Paul C. Jepson tells us that the cultivation of the GM rice caused the reduction of rice diversity (89). This is because GM rice can damage the natural kind by spreading the altered gene through the soil. As the result of this phenomenon, the diversity of natural rice is diminished. Furthermore, there is an herbicide for GM crops which has bad effects on soil (FAO 16). A study by Food and Agriculture Organization of the United Nations reports that “These herbicides are associated with a shift towards less mechanical tillage [one type of the agriculture preparation of the soil] in large-scale arable crops, which reduces primary soil erosion” (19). In fact, the area where herbicide for GM food is used has a big problem to cultivate other plants again because of the soil needs time to recover from the erosion. In the end, this soil becomes wasted land because of this herbicide.

On the other hand, other research showed the evidence about the positive environmental impacts of GM food. The scientists in the genetic engineering are still experimenting with the effects of GM food to the ecosystem, and some of them argue that the GM food is beneficial and can help solve the problems of our environment. One of the big environmental issues is the greenhouse effect, which is caused by chemicals, called ozone depletion material. When farmers distribute the pesticide for protecting crops from harmful insects, the pesticide emits certain chemicals, which generate greenhouse gases in the air. So far, there is no way to diminish the greenhouse gas emissions; however, GM crops decrease the use of the pesticide. This is because the herbicides for GM crops have no these chemicals like chlore-fluoro-carbon. Consequently, if the farmers cultivate GM crops, one of big troubles of environmental issues, ozone depletion, is relived by GM crops. According to one Journal, Biotech Crops Seen Reducing Pesticides Use, Greenhouse Gases, “Since 1996, adoption of biotech crops [GM crops] has contributed to reducing greenhouse gases emissions from agriculture,” says Clapp Setphen, “and decreased pesticide spraying” (par 2). This is because GM crops need “non-regular herbicides” which do not release the source of the chemical substances like SO2, Sulfur dioxide. From this result, GM crops can clearly have positive effects on the atmosphere environment.

Besides, another environmental advantage of GM food is that they positively affect animals. These biotech products, same as GM foods, make up for wild animals fault. One of examples of this case is that GM plants give benefits to animal. Mellon and Rissler say that biotechnology (BT) sunflowers create less damage from moth- type herbivorous insects in the wild (par.35). This is because the BT gene prevents the harm this kind of moth does. In addition, because of this effect, this animal which received BT gene from a BT sunflower becomes more productive than other animals. This phenomenon assists the maintenance of the numbers of certain animals and prevents the imbalance of the environment by keeping food chain intact.

The prediction of the effects of GM food on the environment by scientists is also positive. While developing GM foods, genetic engineering technology is improved. Consequently, new technologies help the environment to be clean. First of all, GM crops eliminate lead, which cause negative results on the human body and natural ecosystem. If people have the excessive amount of these two chemicals in their bodies, this causes fatal illness like lead poisoning. Thomson Jennifer, the author of *Seeds For The Future*, points out that removing lead or cadmium by GM plants is a “process. . .process is called phytoremediation. . . for on-site application of transgenic plants the genes will have to be introduced into highly productive plants” (129). Generally, the poplar trees are used for this purpose (129). Through this process, not only do GM crops remove lead but transgenic plants became productive plants. Other GM crops can be used a different way, to clean up the environment. Thomson mentions that the GM plants can be used as “phytosensors,” for detecting contaminations in the environment (130). From these two predictions of GM plants, there is positive vision of GM foods to affect the environment in the future.

GM foods have benefits and drawbacks to the environment, and this field is still studying by scientists. In order to solve the negative environmental impacts of GM food, scientists can remove the negative aspects of this food to the environment by changing or inserting genes. As a preliminary scientist in this field, the scientists should make great efforts on that GM food will be adjusted by the great efforts of the scientists.

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